

STN

(BOATLUS, INPEC, JAP10, USPATALL)

11/3/07

=> d 113 abs, bib

L13 ANSWER 1 OF 1 USPATFULL on STN

AB The present invention relates to silicon feedstock for producing directionally solidified silicon ingots, thin sheets and ribbons for the production of silicon wafers for PV solar cells where the silicon feedstock contains between 0.2 and 10 ppm boron and between 0.1 and 10 ppm phosphorus distributed in the material. The invention further relates to directionally solidified silicon ingot or thin silicon sheet or ribbon for making wafers for solar cells containing between 0.2 ppm and 10 ppm boron and between 0.1 ppm and 10 ppm phosphorus distributed in the ingot, said silicon ingot having a type change from p-type to n-type or from n-type to p-type at a position between 40 and 99% of the ingot height or sheet or ribbon thickness and having a resistivity profile described by an exponential curve having a starting value between 0.4 and 10 ohm cm and where the resistivity value increases towards the type change point. Finally the invention relates to a method for producing silicon feedstock for producing directionally solidified silicon ingots, thin sheets and ribbons for the production of silicon wafers for PV solar cells.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2007:147006 USPATFULL

TI Silicon feedstock for solar cells

IN Enebakk, Erik, Kristiansand, NORWAY

Friestad, Kenneth, Kristiansand, NORWAY

Tronstad, Ragnar, Sogne, NORWAY

Zahedi, Cyrus, Sandvika, NORWAY

Dethloff, Christian, Oslo, NORWAY

PA ELKEM ASA, Oslo, NORWAY, 0377 (non-U.S. corporation)

PI US 2007128099 A1 20070607

AI US 2004-585004¹ A1 20040112 (10)

WO 2004-NO3 20040112

20060628 PCT 371 date

PRAI NO 2003-5830

20031229

DT Utility

FS APPLICATION

LREP LUCAS & MERCANTI, LLP, 475 PARK AVENUE SOUTH, 15TH FLOOR, NEW YORK, NY, 10016, US

CLMN Number of Claims: 9

ECL Exemplary Claim: 1

DRWN 1 Drawing Page(s)

LN.CNT 297

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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(FILE 'HOME' ENTERED AT 16:24:13 ON 07 NOV 2007)

FILE 'ABI-INFORM, INSPEC, JAP10, USPATFULL, USPATOLD, USPAT2' ENTERED AT 16:24:49 ON 07 NOV 2007

L1 560 S (SI OR SILICON) (8A) (FEEDSTOCK)
 L2 12708 S (FZ OR FLOAT(2W)ZONE)
 L3 0 S (MULTICRYSTAL? RO POLYCRYSTAL?) (8A) (INGOT# OR BOULE# OR CRYST
 L4 17150 S (SOLIDIF?(10A)DIRECT?)
 L5 38650 S (CZ OR CZOCHRALSKI)
 L6 59572 S (SHEET# AND RIBBON#)
 L7 154055 S (SI OR SILICON) (8A) (WAFER#)
 L8 622 S (PV (6A) SOLAR (3W) CELL#)
 L9 5600997 S (B OR BORON)

L10 3525187 S (P OR PHOSPHORUS)
L11 1 S L1 AND L2 AND L4 AND L5 AND L6 AND L9 AND L10
L12 1 S L1 AND L2 AND L4 AND L5 AND L6
L13 1 S L1 AND L2 AND L4 AND L5 AND L6

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STN

HEARLUS, INSPEC, JAPIO, USPATFULL, USPATOLD, USPAT2

4/7/07

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(FILE 'HOME' ENTERED AT 16:24:13 ON 07 NOV 2007)

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L11 1 L1 AND L2 AND L4 AND L5 AND L6 AND L9 AND L10

=> d l1 abs,bib

L1 ANSWER 1 OF 560 ABI/INFORM COPYRIGHT 2007 ProQuest Information and Learning Company; All Rights Reserved on STN

AB The photovoltaic industry has been growing with astonishing rates over the past years. The supply of silicon to the wafer-based industry has recently become a problem. This paper presents a thorough analysis of the PV industry and quantifies the silicon shortage. It is expected that this leads to a decrease in production in 2006 rather than the usual increase. Due to a mismatch in expansion plans of silicon feedstock manufacturers and solar cell manufacturers, a large cell overcapacity will persist up to 2010. The thin-film PV market is expected to profit from the silicon shortage problem; its market share may substantially increase to about 25% in 2010. [PUBLICATION ABSTRACT]

AN 2007:63604 ABI-INFORM
DN 1258159731

TI Analysis of the silicon market: Will thin films profit?

AU Brandsen, G W; Fleuster, M; Hekkert, M P

SO Energy Policy: Publisher: Kidlington, (2007) Vol. 35, No. 6, p. 3121.

Journal code: ENP; 17184. AVAILABILITY: NO

CODEN: ENPYAC; ISSN: 0301-4215.

DT JOURNAL

TC PERIODICAL

LA English

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Examiner's Notes

34/585,034

11903 (03/08/2002)

Ref. U.S. Pat. No. 4,247,588 A (Dasaj, et al.) Class. 2-689

Selected Product Claims 1-8 on 10/3/2007.

S (Si or silicon) (wa) (feedstock)

S (F₂ or fluorine) (zone)

S (multicrystal? or polycrystal?) (Ga) (ingot # or boule # or crystal #)

S (solidif?) (flow) (direction?) or (solidif?) (Ba) direct?)

S (Cz or Czochralski)

S (sheet and ribbon #)

S (Si or silicon) (Ga) (wafer #)

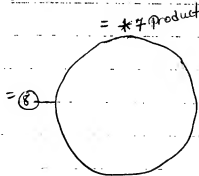
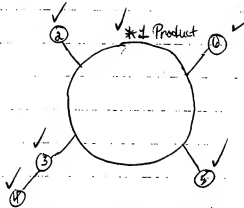
S (PV wa) solar cell #

S (B or boron)

S (P or phosphorus)

34/149,176

31/922,813



- 103 Rej

claims 1-4 over U.S. Pat # 4,247,588 A

- 112 P2 Rej

claims 1-8 "... characterized in that..."

- Allowable Subj Matter

claims 7 & 8

Analysis of the Silicon market: Will this firm profit?

Brandsen, G.W; Flewter, M; HeKert, M.P.

Energy Policy & Publisher: Kidlington, 2007, Vol. 35, No. 6, p. 3121.

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